



CONTENTS: MERCHANDISE—POSTMASTER: THIS PACKAGE MAY BE OPENED FOR POSTAL INSPECTION IF NECESSARY. RETURN POSTAGE GUARANTEED.

DATA COMMUNICATION PRODUCTS DIV.  
ULTRONIC SYSTEMS CORP.

SUBSIDIARY OF  
SYLVANIA ELECTRIC PRODUCTS INC.

MOUNT LAUREL INDUSTRIAL PARK, MORESTOWN, N.J. 08057

**TO:** T. Nelsons Cons'l  
Box 1546  
Poughkeepsie, NY 12603

ULTRONIC SYSTEMS CORP.  
SUBSIDIARY OF  
SYLVANIA ELECTRIC PRODUCTS INC.  
MOUNT LAUREL INDUSTRIAL PARK, MOORESTOWN, N. J. 08057

November 11, 1968

T. Nelsons Consl.  
Box 1546  
Poughkeepsie, N.Y. 12603

Dear Mr. Nelsons:

Enclosed is the information which you requested on our data communication products.

Our Series 1200 Data Pump is a field proven modem which transmits serial data at 1200 Bits per second over an unconditioned voice grade line. The Data Pump is priced at \$475.00 in unit quantities. The Series 2400 Data Pump is priced at \$1495.00 in unit quantities. Discount schedules are available for higher quantities of both models. These prices are f.o.b. Moorestown, N. J. and are firm for sixty days.

The Series MT3000 Magnetic Tape Transmission Terminal provides a flexible media for transmitting data contained on magnetic tape.

You may also be interested in our new Ultracom multiplexing system which allows users to transmit multiple data channels over a single voice grade line. The savings in line costs which these systems yield can frequently pay for the equipment in less than two years. We'll be happy to send you additional information.

Ultronics Systems Corp. has established its own worldwide information system to provide up-to-the-minute stockmarket data and financial news to the country's leading brokers. Our years of experience in engineering and applying data communication systems can be applied to your specific requirements. If you desire, the equipment can be installed and maintained by our factory trained service organization which has over 300 maintenance locations.

Please let me know how we can assist you. Our telephone number is (609) 235-7300.

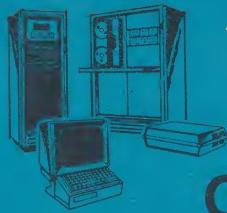
Sincerely,

*W. L. McBlain*

W. L. McBlain  
District Manager  
Data Communication Products

WLM:els

Encls.

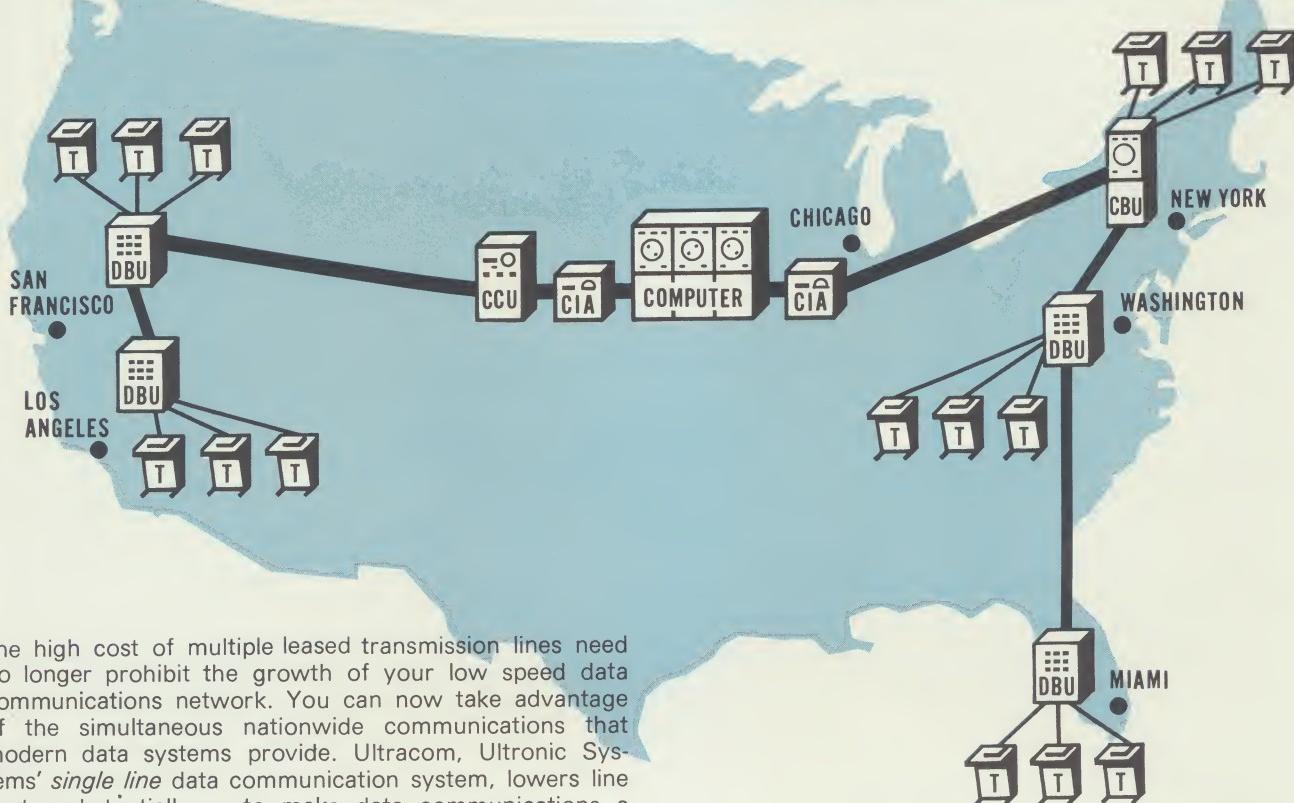


# ULTRONIC DATA COMMUNICATION PRODUCTS DIV.

## TECHNICAL BULLETIN

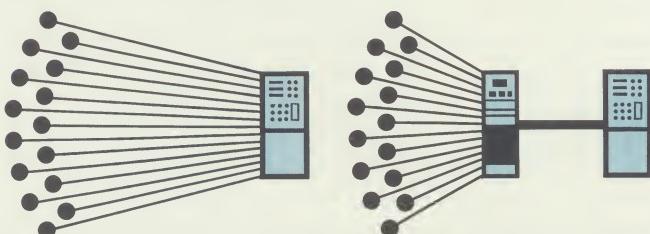
### ULTRACOM™ DATA COMMUNICATIONS SYSTEM

#### ULTRACOM™ CUTS LINE COSTS!



The high cost of multiple leased transmission lines need no longer prohibit the growth of your low speed data communications network. You can now take advantage of the simultaneous nationwide communications that modern data systems provide. Ultracom, Ultronics Systems' *single line* data communication system, lowers line costs substantially — to make data communications a practical reality for most businesses.

Through advanced time division multiplexing techniques, Ultracom provides capabilities for transmitting and receiving data from many terminals simultaneously — through a single voice-grade line. The result: most telegraph-grade lines in a data communications network are eliminated, with the more economical combination of Ultracom and voice-grade lines.



An illustration of Ultracom's economy is shown above. Fifteen west coast ASR 35 teleprinters are linked to an east coast computer through 15 leased telegraph-grade transmission lines (left). Ultracom (right) performs the same data transmission functions—at lower cost, with less error—using just one voice-grade line. In this simple coast-to-coast network Ultracom reduced costs \$20,000 a month.

**TOTAL FLEXIBILITY** for quick, low-cost system expansion—without service interruption—is provided by Ultracom's modular system and unit construction. Individual units and entire systems are designed on a building block principle. This unique two-way flexibility gives you the advantages of an extremely efficient data communication system, configured to your *present* needs, ready to be expanded economically as your network grows.

**RELIABLE**, around-the-clock operation, with no preventive maintenance required. Ultracom's plug-in modular component construction, dual-in-line integrated circuits and solid state design assure continuous system operation.

**ERROR-FREE TRANSMISSION** is assured through inter-equipment status checks, optional parity checks, or redundant logic. An optional back-up system automatically "dials up" a connection should a line malfunction occur.

**NATIONWIDE SERVICE**, through Ultronics Field Service Organization, is available at all times, anywhere in the United States. Ultronics maintains a nationwide service force of specially trained and highly skilled technicians in over 300 locations to provide fast installation, service and maintenance for Ultracom data communications equipment.

# ULTRACOM™ DATA COMMUNICATIONS SYSTEM

Ultracom is a family of modularly-constructed data multiplex units, and their combination is far superior in performance to any single unit multiplexer system available today. Each has been designed to most efficiently solve a specific problem in a communications network. As a result, Ultracom provides a sophisticated data communications system that operates efficiently, is maintenance-free, provides increased thruput capa-

bility, and all this with drastically-reduced costs over the system you are now using. There's a lot more to the exciting Ultracom story than we've presented in this limited space. For more details about how Ultracom can solve your special problems, write or call for additional literature...or an appointment with an Ultracom data communications specialist. He'll help you achieve more economical data communications.

## STANDARD EQUIPMENT

**CONCENTRATOR BASE UNIT (CBU)** is a large-scale data multiplexer which can concentrate over 200 terminal devices into the Ultracom system. Its unique Thruput Adapter (TA) option permits up to four high speed multiplexed lines to be concentrated into a single output line.

**DISTRIBUTED BASE UNIT (DBU)** is a small data multiplexer which services up to three terminal devices. A serial string of DBU's can operate with Ultracom's Central Control Unit (CCU) and the dial back-up option for ultra-reliable operation.

**COMPUTER INTERFACE ADAPTER (CIA)** prepares the concentrated high speed data train for entry directly into a computer, without the need for demultiplexing to low speed adapters at the computer. Data transfer is programmable on a serial or parallel basis. The CIA provides interface levels, control logic, and all buffering between the high speed voice line and the computer.

**CENTRAL CONTROL UNIT (CCU)** is inserted in series with a DBU network leg for manual control when using dial back-up.

## OPTIONS

- THRUPUT ADAPTER
- DIAL BACK-UP
- TERMINAL DEVICE SPEED MIXING
- PARITY CHECK
- INPUT/OUTPUT PATCH PANEL
- REDUNDANT LOGIC (MANUAL/AUTOMATIC)
- BACK-UP POWER (MANUAL/AUTOMATIC)
- STATUS/ALARM CHANNELS BETWEEN UNITS

## Specifications

### MULTIPLEXER CHANNEL CAPACITY:

Determined by options selected, input terminal speeds and voice-line speed.

Some Typical Maximum Capacities are:

TYPICAL TERMINAL	CODE	INPUT TERMINAL SPEED C/S	VOICE-LINE SPEED (BAUD)	ULTRACOM CHANNELS
Teletype ASR 28	5 level	10	1200	22
	5 level	10	2400	46
	5 level	10	4800	94
Teletype ASR 33 or 35	8 level	10	1200	13
	8 level	10	2400	28
	8 level	10	4800	58
Teletype ASR 37	8 level	15	1200	8
	8 level	15	2400	18
	8 level	15	4800	38

### MULTIPLEX FRAME

Time division multiplexed; character interleaved; 16 bits synchronization (other bit lengths optional).

### INPUT DATA FORMAT

Start/stop digital data with 5, 6, 7, 8 or 9 information bits.

### INPUT DATA SPEED

Accommodates 4 different speeds up to 600 baud maximum. Speed selected by available internal clocks.

### INPUT CONNECTION

Simplex, half- or full-duplex. (An input Channel Adapter module is

required for each input connection, and an output Channel Adapter module for each output connection.)

### INPUT INTERFACE

DC battery (internal or external) (battery loop currents — 20ma, 30ma, 60ma) or EIA Standard RS-232-B.

### INPUT DISTORTION

Up to 45% input signal distortion accepted.

### OUTPUT DISTORTION

Regenerated distortion of less than 3.5%.

### HIGH SPEED LINE

Type 3002 (series 4) voice-grade line. Operates with synchronous or asynchronous modems up to 9600 baud.

### HIGH SPEED LINE INTERFACE

EIA Standard RS-232-B.

### POWER REQUIREMENTS

120VAC, 50-60 Hz  
240VAC, 50-60 Hz

#### DATA COMMUNICATION SYSTEMS



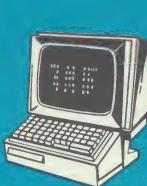
ULTRACOM™

#### MODEMS



DATA PUMP™

#### DISPLAY TERMINALS



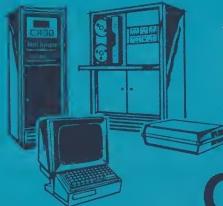
VIDEOMASTER™

#### MAGNETIC TAPE TRANSMISSION TERMINALS



MT 3000-9

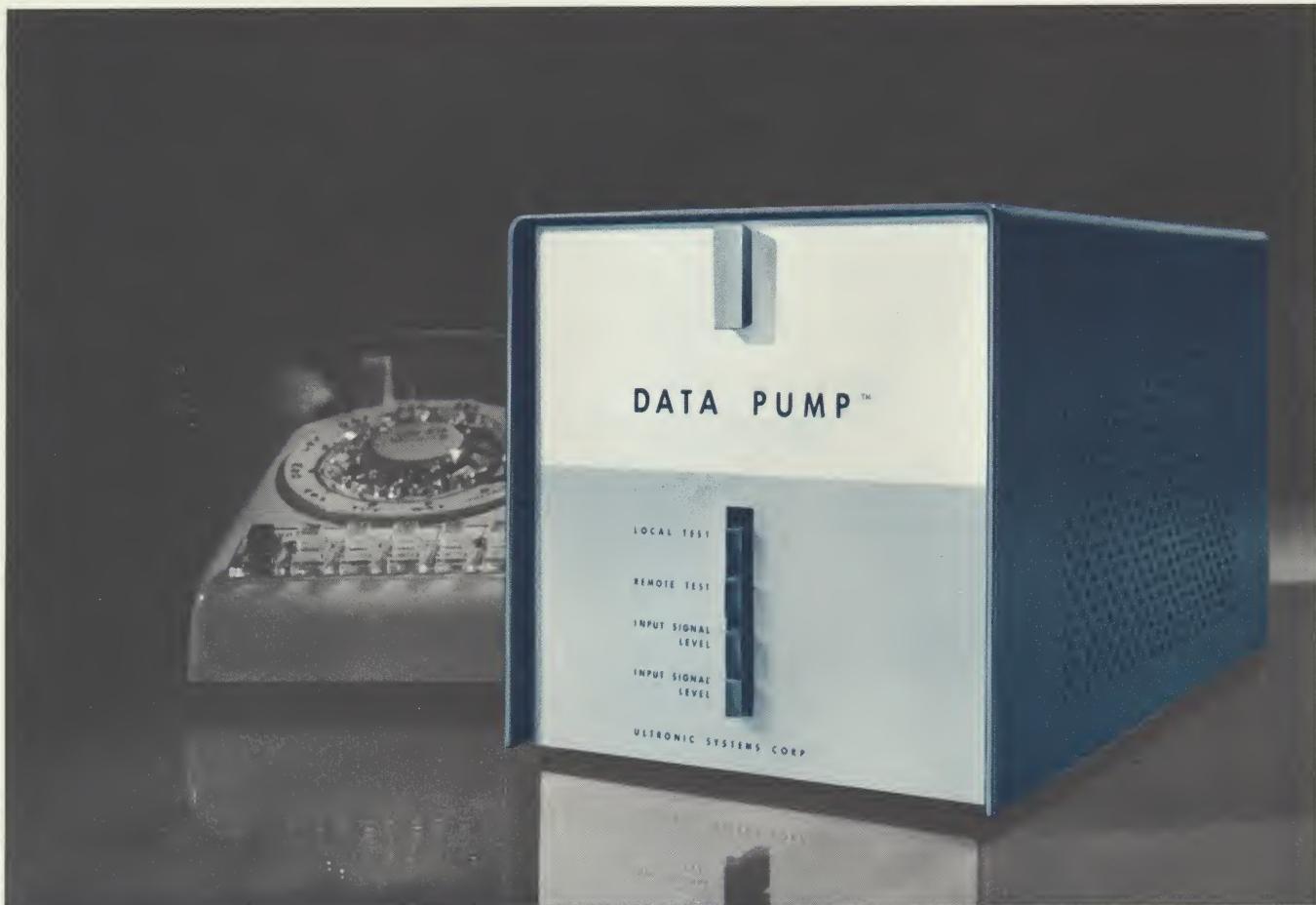
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# ULTRONIC DATA COMMUNICATION PRODUCTS DIV.

## TECHNICAL BULLETIN

### Series 1200 DATA PUMP™



Ultronics Series 1200 Data Pump is a modem (modulator-demodulator) that receives and transmits digital data over telephone lines. A frequency-shift-keyed dataset, the unit receives binary format serial data input from data handling equipment and converts the information to frequency modulated pulses for transmission over unconditioned Schedule 4 voice-grade telephone circuits. The Data Pump also receives the frequency pulses and converts them into digital data for use in data handling equipment.

Operating in simplex (2-wire) and full-duplex (4-wire) modes, Series 1200 Data Pumps transmit and receive at rates up to 1200 bits per second, in accordance with interface requirements specified by EIA standard RS-232-B, and are compatible with Bell 202-D datasets. In addition, a half-duplex mode is available as an option, permitting alternate transmit and receive over a two-wire circuit.

Easy to operate—with simple controls, Ultronics Data Pumps can be installed quickly and easily. They are light in weight—only 11½ pounds...small in size—11½" x 7" x 7" ...and are packaged in an attractive cabinet for desk-top use, or for rack mounting along with associated equipment.

**MAXIMUM RELIABILITY**, long operating life and minimum maintenance are assured by solid state design. Advanced engineering techniques provide error-free data transmission day after day, through thousands of hours of trouble-free operation.

**ELIMINATES HIGH MONTHLY LEASING COSTS** of competitive datasets. Data Pumps are sold outright at a price lower than a year's leasing of comparable modems.

**RAPID SYSTEM STATUS CHECK**, through special front-panel test switches, reduces troubleshooting downtime to a minimum. Limited technical skill is required for day-to-day operation.

**PROVEN THROUGH WORLD-WIDE USE** in thousands of installations in stock quotation systems, Burroughs online Banking Systems, public-utility control operations, data collection systems and a variety of data communications networks. Ultronics Field Service Organization, a national service force of highly skilled technicians, is always available for installation, service and maintenance.

# Series 1200 DATA PUMP

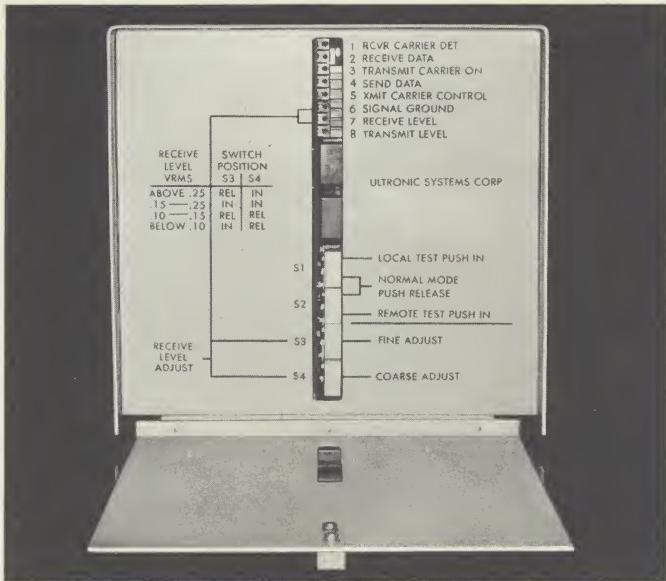


Figure 1

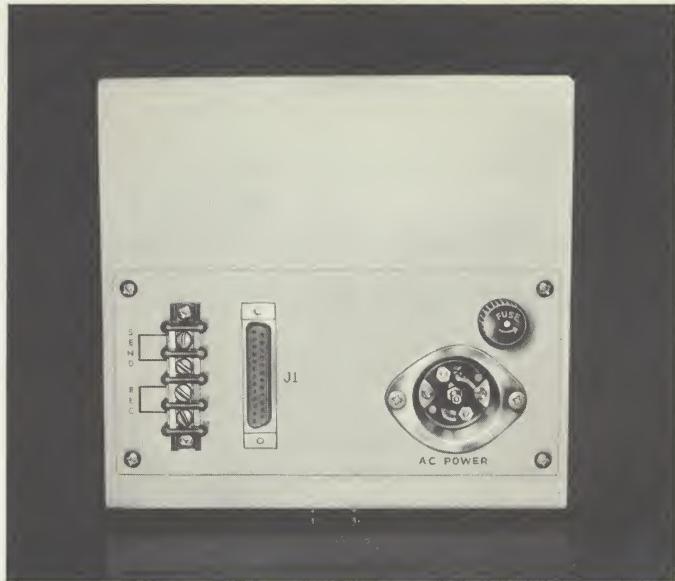


Figure 2

## Specifications

### DATA RATES

Up to 1200 bits per second

### MODULATION

Asynchronous Frequency Shift Keying

### OPERATING MODES

Simplex, Full-duplex  
*OPTIONAL*  
Half-duplex

### TRANSMITTER

CARRIER FREQUENCIES  
Space (0): 1200Hz  
Mark (1): 2200Hz

*OPTIONAL*  
Space (0): 2200Hz  
Mark (1): 1200Hz

### TRANSMIT LEVEL

Variable (0dbm, -8dbm, -10dbm)  
Easily checked at convenient test points inside front panel—see Fig. 1

### OUTPUT IMPEDANCE

600 ohms, balanced

### DATA INPUT

Levels: Space (0): +3 to +25V  
Mark (1): -3 to -25V

Format: Serial binary data  
Impedance: 3000 ohms

### REQUEST TO SEND LEVELS

ON: +3 to +25V  
OFF: -3 to -25V

### RECEIVER

#### SENSITIVITY

Greater than -33dbm

### RECEIVER PAD

Adjustable in four steps of attenuation (0db, 4db, 8db, 12db) with front-panel pushbutton controls S3 and S4—see Figure 1

### INPUT IMPEDANCE

600 ohms, balanced

### DATA OUTPUT

Levels: Space (0): +6V, ±1V  
Mark (1): -6V, ±1V

Current drain in space (0): 5ma max.

### LINE REQUIREMENT

FCC Tariff 260, Type 3002, Schedule 4 circuit (Send, Receive—see Figure 2)

### INTERFACE

Complies with EIA Standard RS-232-B (standard 25 pin connector or J1—see Figure 2)

### CARRIER DETECTOR OPTION

Turn-on time: 35msec, ±15msec

(+6V, ±1V)

-Turn-off time: 15msec, ±5msec

(-6V, ±1V)

### POWER REQUIREMENTS

(a) 117 vac ±10%, 50/60Hz, single phase, 0.25amp

(b) 220 vac ±10%, 50/60Hz, single phase, 0.125amp

### ENVIRONMENTAL RANGE

Operating ambient: 0° to +50° C

Storage ambient: -10 to 65° C

Relative humidity: 0 to 95%

### PHYSICAL SPECIFICATIONS

Size: 11½ "D, 7"W, 7"H

Weight: 11½ lbs.

### TEST FUNCTIONS

LOCAL TEST (S1—see Figure 1)

(1) Connects transmitter output to receiver input through selected pad.

(2) Terminates transmit and receive lines to 600 ohms.

(3) Activates carrier control to turn carrier on.

### REMOTE TEST (S2—see Figure 1)

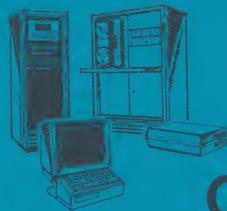
(1) Connects receiver data output to transmitter data input.

(2) Activates carrier control to turn carrier on.

For additional information or assistance in system planning, write or call:

DATA COMMUNICATION SYSTEMS	MODEMS	DISPLAY TERMINALS	MAGNETIC TAPE TRANSMISSION TERMINALS
ULTRACOMM™	DATA PUMP™	VIDEOMASTER™	MT 3000-9

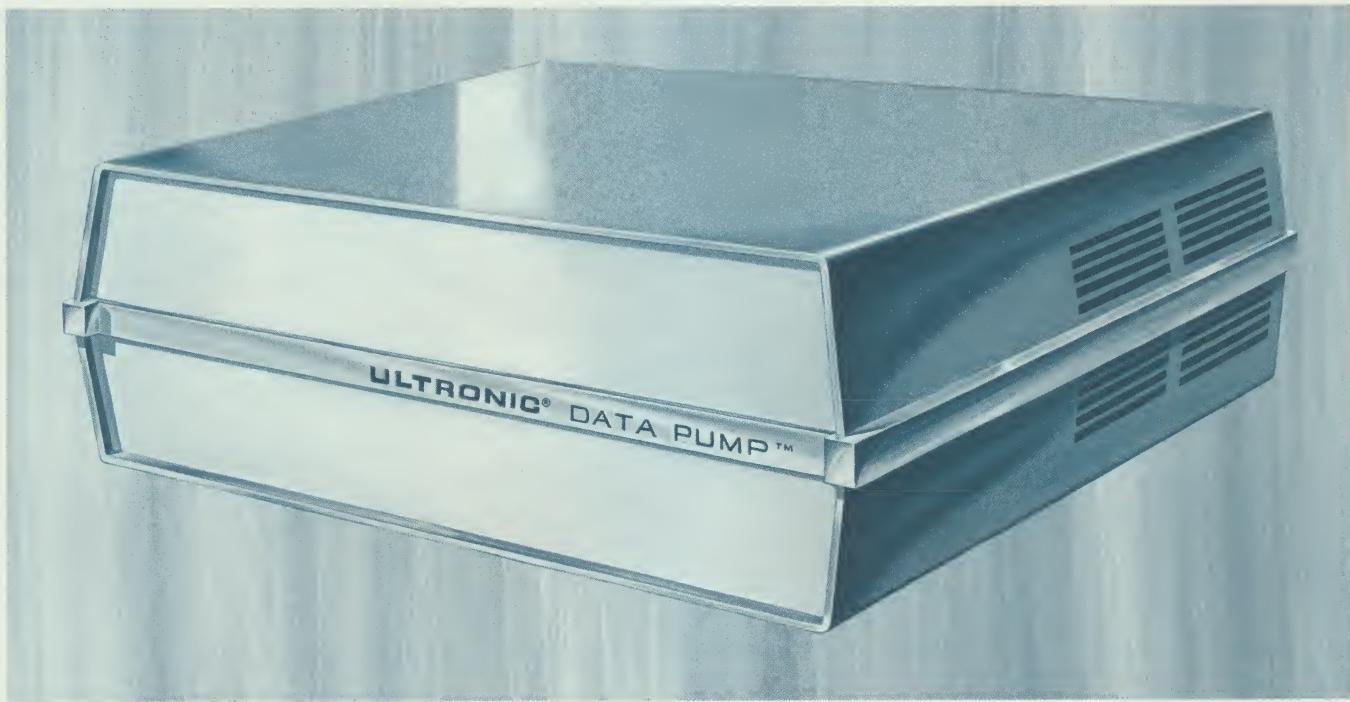
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**MOUNT LAUREL INDUSTRIAL PARK**  
**MOORESTOWN, N.J. 08057 • PHONE: 609/235-7300**



# ULTRONIC DATA COMMUNICATION PRODUCTS DIV.

## TECHNICAL BULLETIN

### Series 2400 DATA PUMP™



Ultronics Series 2400 Data Pump is a modem (modulator-demodulator) that receives and transmits synchronous digital data over voice-grade telephone lines. A frequency-shift-keyed dataset, the unit receives serial binary data from data handling equipment and converts the information to frequency modulated pulses for transmission over Type 3002 (Schedule 4) voice-grade telephone circuits. The Data Pump also reconverts transmitted frequency pulses back into serial digital data for use in data handling equipment.

Operating in full-duplex (4-wire) and simplex (2-wire) modes, Series 2400 Data Pumps transmit and receive at 2400 bits per second, in accordance with interface requirements specified by EIA Standard RS-232-B, and are functionally compatible with Bell 201-B datasets. In addition, a half-duplex mode is available as an option, permitting alternate transmit and receive over a two-wire circuit.

Easy to operate—with simple controls, Ultronics Data Pumps can be installed quickly and easily. They are small and lightweight, and are packaged in an attractive cabinet for desk-top use, or for rack mounting along with associated equipment. The Series 2400 Data Pump is fully compatible with many kinds of business machines and data processing equipment such as computers, magnetic tape terminals, keyboard printers, visual display (CRT) units, and others.

**MAXIMUM RELIABILITY**, long operating life and minimum maintenance are assured by solid state design. Advanced engineering techniques provide error-free data transmission day after day, through thousands of hours of trouble-free operation.

**TOTAL FLEXIBILITY**, for a wide variety of applications, is assured by a modular plug-in building block design concept. Buy Data Pumps with only those modules needed for your present system. As requirements change with system growth, modules can be incorporated easily, at low cost, without service interruption.

**ELIMINATES HIGH MONTHLY LEASING COSTS.** Data Pumps are sold outright at a price lower than two years' leasing of comparable modems.

**RAPID SYSTEM STATUS CHECK** through special test switches, reduces troubleshooting effort to a minimum. To further simplify troubleshooting, a pattern generator and an error detector are available as options.

**NATIONWIDE SERVICE**, through Ultronics Field Service Organization, is available anywhere in the United States. Ultronics maintains a nationwide service force of over 200 specially trained and highly skilled technicians to provide fast installation, service and maintenance for its Data Pumps.

# Series 2400 DATA PUMP™

## Specifications

### DATA RATES

2400 bits per second

### MODULATION

Synchronous Frequency Shift Keying

### OPERATING MODES

Simplex, Full-duplex  
OPTIONAL

Half-duplex

### TRANSMITTER

CARRIER FREQUENCIES  
1200Hz 2400Hz

### TRANSMIT LEVEL

Variable (0dbm to -12dbm)

### OUTPUT IMPEDANCE

600 ohms(opt. 900 ohms), balanced

### DATA INPUT

Levels: Space (0): +3 to +25V  
Mark: (1): -3 to -25V

Format: Serial binary data

Impedance: 3000 ohms

### RECEIVER

CARRIER FREQUENCIES  
1200Hz 1800Hz 2400Hz

### RECEIVE LEVEL

Variable (-3 dbm to -30dbm)

### INPUT IMPEDANCE

600 ohms(opt. 900 ohms), balanced

### DATA OUTPUT

Levels: Space (0): +6V, ±1V  
Mark (1): -6V, ±1V

### LINE REQUIREMENT

FCC Tariff 260 Type 3002 (Schedule 4 Circuit), or equivalent with Type C1 conditioning

### INTERFACE

Complies with EIA Standard RS-232-B/CCITT V.24 data interface recommendations

### POWER REQUIREMENTS

117VAC ±10%, 50Hz / 60Hz  
220VAC ±10%, 50Hz / 60Hz

### ENVIRONMENTAL RANGE

Operating ambient: 0 to +50° C  
Relative humidity: 0 to 95%  
Altitude: Up to 10,000'

### TRANSMITTER SIGNAL ELEMENT

#### (Clock-output)

Waveform: Squarewave  
Phasing: Positive going edge coincides with data transitions  
Frequency: Same as bit rate  
Level: ±6V, ±1V  
Frequency stability: 1 part in  $10^4$

### EXTERNAL TRANSMITTER SIGNAL ELEMENT (Clock-input)

(Required if internal clock not supplied)

Waveform: Squarewave  
Phasing: Positive going edge coincides with data transitions  
Frequency: Same as bit rate  
Level: ±6V, ±1V  
Rise time: Not more than 10% of bit length  
Frequency stability: 0.01% min.

### RECEIVER SIGNAL ELEMENT

#### (Clock-output)

Waveform: Squarewave  
Phasing: Positive going edge coincides with data transitions  
Frequency: Same as bit rate  
Level: ±6V, ±1V  
Frequency: Synchronized to transmitter clock

## Options

**DELAY/ AMPLITUDE EQUALIZERS**—For most applications, equalization will not be necessary. Where Type 3002 with C1 conditioning (Type 4A) line requirements cannot be met, plug-in equalizers are available.

**PATTERN GENERATOR** generates a data pattern of known rate and quality. It facilitates troubleshooting and system alignment.

**ERROR DETECT AND CORRECTOR** compares actual carrier frequency sequences to programmed sequences to detect and correct single bit line errors on the data path. It will also provide an output that indicates these error occurrences and can drive a relay, or counter.

**TWO-WIRE, HALF-DUPLEX OPERATION** allows alternate Send and Receive operation over a two (2) wire circuit.

**VARIABLE TURN-AROUND TIME**—Normal turn-around time of 150 milliseconds is provided. Other turn-around times are optionally available.

**NEW SYNC** permits receiving business machine to present an input to the Data Pump so that existing synchronization may be squelched and new synchronization established within 8-1/2 milliseconds.

Note: If a receive clock is not required in a multipoint operation, turn-around can be accomplished in less than 8-1/2 milliseconds.

**EXTERNAL TRANSMIT CLOCK**—Series 2400 Data Pump can be clocked by an external timing source.

**RECEIVE CLOCK**—Series 2400 Data Pumps do not require receive clocks to recover data. But to meet those requirements where a receive timing signal is needed, the optional receive clock is available.

**REMOTE CONTROLLED "LOOP BACK" TEST** facilitates system testing by allowing a central location to loop back its own data signals through a remote data pump.

**RACK ADAPTERS** allow the normally desk mounted Series 2400 Data Pump to be mounted in a standard 19" relay rack.

For additional information or assistance in system planning, write or call:

DATA COMMUNICATION SYSTEMS



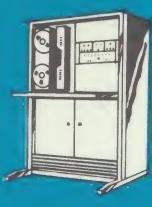
MODEMS



DISPLAY TERMINALS



MAGNETIC TAPE TRANSMISSION TERMINALS



ULTRACOM™

DATA PUMPS™

VIDEOMASTER™

MT 3000-9

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# ULTRONIC<sup>®</sup>

## DATA COMMUNICATIONS EQUIPMENT

## TECHNICAL BULLETIN

### Series MT 3000 Magnetic Tape Transmission Terminals

Ultronics Series MT 3000 Magnetic Tape Transmission Terminals are highly versatile data stations which read data from magnetic tape and transmit it serially over a voice-band or broad-band communication line; and receive data from a voice-band or broad-band line and record it on magnetic tape.

Series MT 3000 Terminals can transmit or receive data from standard IBM format magnetic tapes, with packing densities of 200/556 or 556/800 bits per inch, at speeds up to 40,800 bits per second, operating in a half duplex mode—one direction at a time over a two-wire facility, or in a full duplex mode.

Each Terminal consists of a magnetic tape handler; a buffer memory with 512, 1024, 2048, 4096, or 8192 character capability; and circuits for both transmitting or receiving data. Data is read from or written on magnetic tape in the form of variable length records. The maximum length record depends on the size of the buffer memory in the terminal.

Two models are available. The MT 3000-7 contains a 7 level tape drive and is compatible with the IBM 729 tape format. The MT 3000-9 contains a 9 level tape drive, and is compatible with the IBM 2400 Series tape format. Any 6 level (MT 3000-7) or 8 level (MT 3000-9) code can be handled.

**ERROR-FREE TRANSMISSION** is assured by an error-detection system which operates through tape read, data transmit/receive and tape write cycles. Character and longitudinal parity checks are performed throughout, and added control characters must be acknowledged positively by the receiving terminal before records are accepted. Upon error detection, records are re-read, re-transmitted, and/or re-written up to three times. If not corrected, the operator is signalled both visually and audibly.

#### MAXIMUM VERSATILITY AND FLEXIBILITY

are provided by:

operation of terminal in transmitting or receiving mode;  
36 inches per second tape read or write speed;  
200/556 bits per inch or 556/800 bits per inch switch-selectable tape read or write densities;



choice of 512, 1024, 2048, 4096 or 8192 character buffer memory;

two or four wire operation;

utilization of 1000 bps, 1200 bps, 2400 bps, 4800 bps and 40,800 bps transmitting speeds;

use of leased voice-band lines, public switched telephone lines, or broad-band lines through various commercially available DATASETS (modems).

**MAXIMUM RELIABILITY**, long operating life and minimum maintenance are assured by advanced engineering and solid state design. Ultronics data communications systems are providing thousands of hours of trouble-free, error-free data transmission in stock quotation systems and a variety of data communications networks. Ultronics' Field Service Organization, a nationwide service force of highly skilled technicians, is always available for installation, service and maintenance.

# OPERATION AND ERROR CONTROL

Operating in the transmit mode, the transmitting terminal reads a record from the magnetic tape, checking parity of each character and longitudinal parity at the end of each record.

If an error is detected during tape read, the unit will try to read the record correctly three times. If the record is not readable after three attempts, a tape halt alert is set with visual and audible indication to the operator.

Upon manual intervention, or if no error has been detected, the record is stored in the buffer memory. When the transmitter buffer memory contains a complete record, it is serially transmitted to the receiving terminal buffer memory. The transmitted record includes odd or even character parity and a longitudinal parity character. Control characters are automatically inserted into each record prior to transmission. These include Start-of-Message (SOM), Start-of-Record (SOR), End of Message (EOM) and Longitudinal Parity Check (LPC).

If an error is detected during transmission, the receiving terminal signals the transmitting terminal to re-read the tape and re-transmit the record. If the

error has not been corrected after three attempts, an operator alert is set.

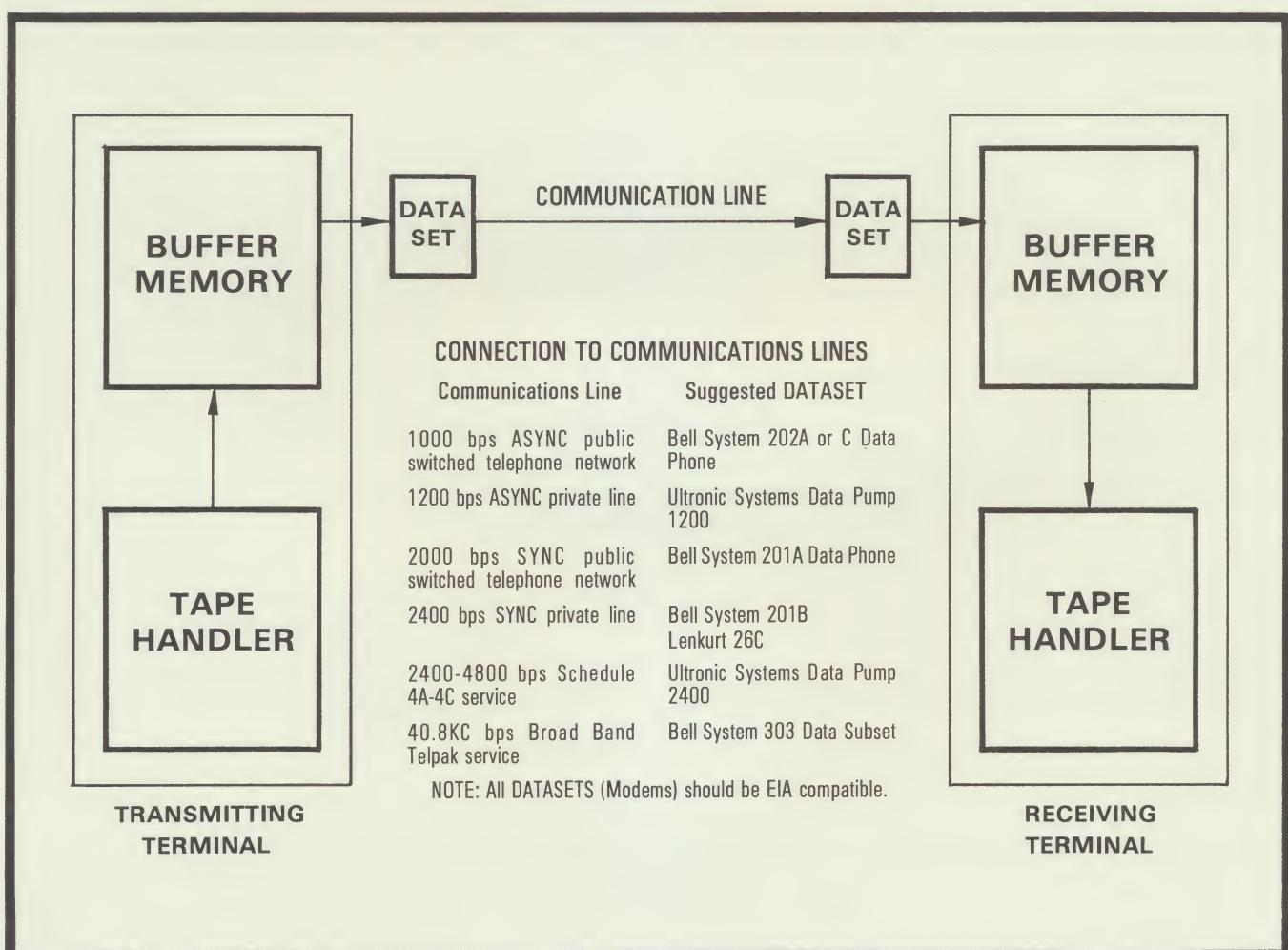
Upon correction, or if no transmission error has been detected, the receiving terminal buffer memory will write the record on its tape. Control characters are stripped from the data written on the tape, and a read-after-write check is performed.

If an error is detected, the receiving terminal notifies the buffer memory and initiates a re-write. If the error has not been corrected after three attempts, a halt alert is set with visual and audible indication to the operator.

Upon correction, or if no writing error has been detected, the receiving terminal requests the transmitting terminal to send the next record.

This process is continued until End-of-File is detected, which activates an operator alert at the transmitting terminal. The operator then manually transmits End-of-File to the receiving terminal.

Front panel indicator lamps provide visual indication of error status, transmission status, memory status and End-of-File status.



# SPECIFICATIONS

	MT 3000-7	MT 3000-9
<b>TAPE</b>	0.5 inch magnetic tape recorded at 200, 556, or 800 bits per inch 7 track tape format is compatible with IBM 729 Series Magnetic Tape Units	0.5 inch magnetic tape recorded at 200, 556, or 800 bits per inch 9 track tape format is compatible with IBM 2400 Series Magnetic Tape Units
<b>TAPE CODE</b>	Any 6 level code (6 data bits plus one parity bit per character). Even or odd parity can be switch-selected	Any 8 level code (8 data bits plus one parity bit per character). Even or odd parity can be switch-selected
<b>RECORD LENGTH</b>	Up to 512, 1024, 2048, 4096 or 8192 characters per record, depending on buffer size	
<b>TAPE FORMAT</b>	IBM format. 0.75" inter-record gap. Longitudinal Parity Check within four characters of last character in record. End of File 3.5" after last character in record, followed by 0.75" inter-record record gap	IBM format. 0.6" inter-record gap. Cyclic Redundancy Check within four characters of last character in record. Longitudinal Parity Check within four characters of Cyclic Redundancy Check
<b>TRANSMISSION</b>		
<b>Method</b>	Serial by bit	
<b>Mode</b>	Two or four wire	
<b>Code</b>	8 bit transmission characters, including 6 data bits, one parity bit and one control bit	10 bit transmission characters, including 8 data bits, one parity bit and one control bit
<b>Speed</b>	1000 to 4800 bits per second on voice-band facilities. 40,800 bits per second on wide-band facilities	
<b>POWER REQUIREMENTS</b>	115 vac, 60Hz, single phase, 1.2 kva OPTIONAL: 208-230 vac, 60Hz, single phase, 1.2 kva	
<b>ENVIRONMENTAL RANGE</b>	Operating ambient: 60° to 90° F Relative humidity: 40 to 70% 9000 BTU per hour cooling required Storage temperature: 40° to 100° F	
<b>PHYSICAL SPECIFICATIONS</b>	Size: 24" deep, 50" wide, 73" high Weight: 1,000 lbs.	
<b>TAPE TRANSPORT</b>		
<b>Tape Width</b>	0.5 inch tape, compatible with IBM or NARTB	
<b>Reel Size</b>	8½" and 10"	
<b>Tape Speed</b>	36 inches per second	

## OPTIONAL FEATURES

### MASTER TERMINAL DATA DIRECTOR

Permits an MT-3000 Tape Terminal to select, edit and transmit different records from one reel of magnetic tape to as many as ten receiving Terminals (no record may be transmitted simultaneously to more than one receiver). Selection is accomplished through computer formatted address codes and operator panel switches.

### AUTOMATIC RECORD COUNTER

Digital counter on operator panel shows accumulative number of successful transmissions. Capacity is 77777<sub>8</sub>. Counter is standard on MT 3000-9 Terminal.

### BUFFER MEMORIES

1024 character buffer is standard in MT 3000-7 and MT 3000-9. Optional sizes available include 512, 2048, 4096 and 8192 character buffers. Tape density options available in 200/556 or 556/800 bpi.

# ULTRONIC SYSTEMS CORP.

The world's leading supplier of electronic stock quotation systems and equipment, Ultronics Corp. processes and furnishes accurate, up-to-the-minute stock and commodity information to the financial community through a worldwide data communications network.

In brokerage offices, business offices, and on Television screens, MARKETMASTER™ and INSTANTQUOTE™ stock quotation boards and STOCKMASTER™ desk-top quotation units, provide instantaneous market data from the major stock and commodity exchanges. Minute-by-minute price changes are shown, conveyed in seconds by high-speed data communications lines. From Ultronics' master computer comes instantaneous data on trends, averages and other market indicators...the most active stocks, S & P indexes, Dow-Jones averages, trading volume and issues up, off and unchanged.



## DATA COMMUNICATIONS SYSTEMS

The dependability and integrity of Ultronics Systems has been proven in thousands of installations of data communications systems and equipment all over the free world. From Hong Kong to Amsterdam, from Honolulu to Rome, Ultronics data networks bring instant communications to customers with a multitude of requirements.

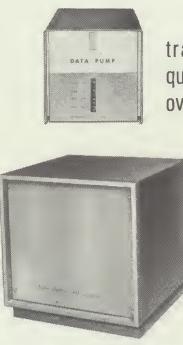
From a simple waybill transmission system involving three states and twelve data stations, to a complex international data network, Ultronics is meeting the growing demand for fast, flexible, economical, accurate data communications.



## DATA COMMUNICATIONS EQUIPMENT



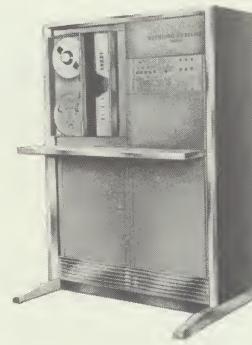
**MULTIPLEXING SYSTEMS** employ advanced design time division multiplexing techniques to greatly increase data volume transmission by utilizing voice-grade telephone lines.



**DATA PUMPS™** translate digital data into frequency tones for transmission over voice-grade lines.

**SIMULCOM™ COMMUNICATION SYSTEMS**

allow multiple data stations to operate simultaneously, eliminating two-way data traffic delays.



**MAGNETIC TAPE TRANSMISSION TERMINALS** permit transmission and reception of taped digital data on voice-band or broad-band circuits at speeds as high as 40,800 bps.

DATA COMMUNICATION PRODUCTS DIV.

## ULTRONIC SYSTEMS CORP.

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